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## ABSTRACT

A system for repairing roads is provided. The system includes a highly strain tolerant, substantially impermeable, reflective crack relief interlayer. The interlayer includes a polymer modified asphalt binder mixed with a dense fine aggregate mixture. About 100% of the aggregate should be able to pass through about a 9.5 mm sieve. The interlayer mix is designed using volumetrics and verified using a Flexural Beam Fatigue test and a Hveem Stability test. Preferably, an HMA overlay that is compatible with the interlayer, as well as the demands of local traffic, is placed over the interlayer so that a protected, smooth road surface is provided. The system may delay the first appearance of cracks and the severity of cracks for several years compared with traditional hot mix overlays.

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